

CLAIMS

1. A control apparatus of a construction machine that includes:

5 a variable displacement hydraulic pump driven by a prime mover;

a hydraulic actuator driven with pressure oil discharged from the hydraulic pump; and

a rotation speed detection means for detecting an
10 actual rotation speed of the prime mover, comprising:

a prime mover control means for controlling a rotation speed of the prime mover in accordance with an extent to which the operating means is operated; and

an input torque control means for adjusting an input
15 torque for the hydraulic pump based on a deviation between the actual rotation speed detected by the rotation speed detection means and a control rotation speed set through an operation of the operating means, wherein:

the input torque control means executes control to
20 decrease the input torque if the control rotation speed is greater than the actual rotation speed and the deviation between them is larger than or equal to a predetermined value.

2. A control apparatus of a construction machine that
25 includes:

a variable displacement hydraulic pump driven by a prime mover;

a hydraulic actuator driven with pressure oil discharged from the hydraulic pump; and

5 a rotation speed detection means for detecting an actual rotation speed of the prime mover, comprising:

a prime mover control means for controlling a rotation speed of the prime mover in accordance with an extent to which the operating means is operated; and

10 an input torque control means for adjusting an input torque for the hydraulic pump based on a deviation between the actual rotation speed detected by the rotation speed detection means and a control rotation speed set through an operation of the operating means, wherein:

15 if the control rotation speed is greater than the actual rotation speed and the deviation between them is larger than or equal to a predetermined value, the input torque control means executes control to decrease the input torque by an amount which is greater than an amount set when the deviation
20 is below the predetermined value.

3. A control apparatus of a construction machine according to claim 1 or claim 2, wherein:

the input torque control means sets an adjustment
25 amount of the input torque to zero if the control rotation

speed is greater than the actual rotation speed and the deviation between them is below the predetermined value.

4. A control apparatus of a construction machine according to any one of claims 1 through 3, wherein:

the input torque control means executes control to increase the input torque in correspondence with increase in the deviation if the control rotation speed is smaller than the actual rotation speed, and

10 if the control rotation speed is greater than the actual rotation speed and the deviation between them is larger than or equal to the predetermined value, a rate of change of the input torque is set greater than a rate of change of the input torque set when the control rotation speed is smaller than
15 the actual rotation speed.

5. A control apparatus of a construction machine according to any one of claims 1 through 4, wherein:

the hydraulic actuator is a hydraulic motor for
20 traveling, and the operating means is a travel pedal.

6. A control apparatus of a construction machine according to claim 5, further comprising:

a travel detection means for detecting traveling or
25 non-traveling, wherein:

if the non-traveling is detected with the travel detection means when the control rotation speed is greater than the actual rotation speed, the input torque control means decreases the input torque by an amount which is greater than
5 an amount set when the traveling is detected.

7. A wheeled hydraulic excavator, comprising:
a variable displacement hydraulic pump driven by a prime mover;
10 a hydraulic actuator driven with pressure oil discharged from the hydraulic pump;
a rotation speed detection means for detecting an actual rotation speed of the prime mover; and
a control apparatus according to any one of claims 1
15 through 6.

8. An method for calculating an input torque which is implemented by a hydraulic circuit including at least a variable displacement hydraulic pump driven by a prime mover
20 and a hydraulic actuator driven with pressure oil discharged from the hydraulic pump, comprising:

calculating a standard torque in correspondence with a deviation between a control rotation speed and an actual rotation speed of the prime mover;

setting a correction torque to zero if the control rotation speed is greater than the actual rotation speed and the deviation between them is smaller than or equal to a predetermined value, but setting the correction torque to a
5 negative value if the deviation is larger than or equal to the predetermined value; and

calculating the input torque by adding the correction torque to the standard torque.